Worksheet 2 Types of Operating System Answers

Task 1

1. (a) In mobile operating systems, why do you think underlying hardware is handled by a low level proprietary OS, made and owned by the hardware manufacturer, and the user interface and applications are handled separately?

- The user interface and the ability to run certain applications are a crucial part of the user's decision about which type of phone to purchase
- Manufacturers want the user experience to be the same across a variety of different hardware devices
- They may use an open-source operating system such as Android and customise it rather than writing their own from scratch
- Users are not as concerned with how underlying things such as cellular connectivity work, as long as they do work properly

(b) Why do mobile devices such as smartphones and tablets require a different operating system from a desktop computer?

- The device typically has a slower processor / less RAM than a desktop
- …so memory management and CPU scheduling may need to be handled differently
- Mobile devices have different interface needs
- …e.g. most mobile devices need a touch screen interface
- Software that can be run on the device depends on the OS
- …may not be capable of running programs designed for a desktop environment

Task 2

2. (a) Match up the statements with the correct type of Operating System(s) that they relate to. Some statements may relate to more than one type of operating system.

- Distributed
- Embedded
- Multi-tasking
- Multi-user
- Real-time

A mainframe computer's processing power is used by lots of individual terminals Multi-tasking, Multi-user	A single job can be processed using the resources of multiple computers Distributed
Processor time is scheduled according to an algorithm Multi-tasking, Multi-user	Inputs must be acted upon very quickly by the operating system Real time
A household appliance might use this type of Operating System Embedded	A home desktop computer might have this type of operating system Multi-tasking
Hardware redundancy and fail safes are required if the system is safety-critical Real time	This type of OS gives the illusion of working with a single processor, when in reality jobs are coordinated across multiple computers Distributed

(b) Write down two more statements which relate to a type of operating system. Either in a group or with a partner, see if another student can work out which type of operating system your statement relates to.